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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/758,740	01/16/2004	Wade Thomas Cathey JR.	414671	6369
30955	7590	01/29/2008		
LATHROP & GAGE LC 4845 PEARL EAST CIRCLE SUITE 300 BOULDER, CO 80301			EXAMINER CHANG, AUDREY Y	
			ART UNIT 2872	PAPER NUMBER
			MAIL DATE 01/29/2008	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/758,740	<b>Applicant(s)</b> CATHEY ET AL.	
	<b>Examiner</b> Audrey Y. Chang	<b>Art Unit</b> 2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 19 November 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 7,8 and 11-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 7,8 and 11-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>1/16/2004</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Remark*

- This Office Action is in response to applicant's appeal brief filed on November 19, 2007, which has been entered into the file.
- Claims 7, 8 and 11-23 remain pending in this application.

### *Response to Arguments*

1. Applicant's arguments, see appeal brief, filed November 19, 2007, with respect to the following grounds of rejection (please see the list below) have been fully considered and are persuasive. The rejections of claims 7, 8 and 11-23 with regard to 35 USC 103(a) (please see the list below) have been withdrawn.

**A. Claims 7, 11 and newly added claims 12-14, 16, 18, 20 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Kudo et al (4,480,896).**

**B. Claim 8 and newly added claims 15, 17 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Kubo et al and in view of the article "Optical/digital incoherent image processing for extended depth of field" by Poon et al (Applied Optics Vol. 26, No. 21, page 4612).**

2. The following double patenting rejections that have been set forth in the previous Office Action dated March 20, 2006, remain.

### *Double Patenting*

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would

have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. **Claims 7-8, 11 and 12-23 are provisionally rejected** under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 75-79, 82-84, 87, 89-101, 103-105 and 107 of copending **Application No. 09/070,969 (NOW patent number 7,218,448)**. Although the conflicting claims are not identical, they are not patentably distinct from each other because both sets of claims recite an optical mask for altering phase of an imaging system to extend depth of the focus of the imaging system with same functional characteristics for the inherent point spread function and the ambiguity function characterized the imaging system.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

5. **Claims 7-8, 11 and 12-23 are provisionally rejected** under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of copending **Application No. 11/192,572 (NOW patent number 7,106,510)**. Although the conflicting claims are not identical, they are not patentably distinct from each other because both sets of claims recite an optical mask for altering phase of an imaging system to extend depth of the focus of the imaging system. Although the cited

reference does not teach explicitly about the ambiguity function and the point spread function, such functions are inherent for the imaging system.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

6. **Claims 7-8, 11, and 12-23 are rejected** on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-21 of **U.S. Patent No. 5,748,371**. Although the conflicting claims are not identical, they are not patentably distinct from each other because both sets of claims recite an optical mask for altering phase of an imaging system and to extend depth of focus for the imaging system. Although the cited reference does not teach explicitly about the ambiguity function and the point spread function, such functions are inherent for the imaging system. Furthermore, both the instant application and the cited patent claim the same cubic phase modulation for the optical mask.

7. **Claims 7-8 and 11-23 are rejected** on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-6, 9-18, and 21-22 of **U.S. Patent No. 6,525,302**. Although the conflicting claims are not identical, they are not patentably distinct from each other because both sets of claims recite an optical mask for altering phase of an imaging system and to extend depth of focus for the imaging system. Although the cited reference does not teach explicitly about the ambiguity function and the point spread function, such functions are inherent for the imaging system.

8. **Claims 7-8 and 11-23 are rejected** on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-4 of **U.S. Patent No. 6,873,733**. Although the conflicting claims are not identical, they are not patentably distinct from each other because both sets of claims recite an optical mask for altering phase of an imaging system and to extend depth of focus for the imaging

system. Although the cited reference does not teach explicitly about the ambiguity function and the point spread function, such functions are inherent for the imaging system.

9. **Claims 7-8 and 11-23 are rejected** on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-29 of **U.S. Patent No 6,911,638**. Although the conflicting claims are not identical, they are not patentably distinct from each other because both sets of claims recite an optical mask for altering phase of an imaging system and to extend depth of focus for the imaging system. Although the cited reference does not teach explicitly about the ambiguity function and the point spread function, such functions are inherent for the imaging system. Furthermore, both the instant application and the cited reference disclose the phase modulation includes cubic phase modulation.

10. **Claims 7-8 and 11-23 are rejected** on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of **U.S. Patent No 6,940, 649**. Although the conflicting claims are not identical, they are not patentably distinct from each other because both sets of claims recite an optical mask for altering phase of an imaging system and to extend depth of focus for the imaging system. Although the cited reference does not teach explicitly about the ambiguity function and the point spread function, such functions are inherent for the imaging system.

11. **Claims 7-8 and 11-23 are rejected** on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-5 of **U.S. Patent No (not yet assigned Application number 10/355,761)**. Although the conflicting claims are not identical, they are not patentably distinct from each other because both sets of claims recite an optical mask for altering phase of an imaging system and to extend depth of focus for the imaging system. Although the cited reference does not teach explicitly about the ambiguity function and the point spread function, such functions are inherent for the

imaging system. Furthermore, both the instant application and the cited reference disclose the phase modulation includes cubic phase modulation.

***Conclusion***

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 571-272-2309. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephone B. Allen can be reached on 571-272-2434. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

*Audrey Y. Chang, Ph.D.*  
*Primary Examiner*  
*Art Unit 2872*

A. Chang, Ph.D.

A handwritten signature in black ink, appearing to read 'Audrey Y. Chang', is written over the printed name and title.